IN THE CLAIMS:

1. (Currently amended) An apparatus, comprising:

a stent having a resonant frequency; ~~and~~

means for enhancing microwave radiation that is scattered from said stent, wherein said means produces a larger scattered microwave radiation field over that which would occur from said stent absent said means; and

a diagnostic that is operationally responsive to said resonant frequency.

2. (Original) The apparatus of claim 1, wherein said means comprises a cylindrical symmetry variation in said stent.

3. (Original) The apparatus of claim 1, wherein said stent comprises a cylindrical axis, wherein said means comprises a gap along said cylindrical axis.

4. (Original) The apparatus of claim 1, further comprising a microwave transmitter for transmitting microwave radiation to said stent, wherein said stent produces scattered or reflected microwave radiation.

5. (Original) The apparatus of claim 4, further comprising a microwave receiver for receiving data comprising said scattered or reflected microwave radiation.

6. (Original) The apparatus of claim 5, further comprising computer hardware with software comprising an algorithm for analyzing said data to determine whether in-stent restenosis has occurred.

7. (Original) The apparatus of claim 6, wherein said software further comprises an algorithm for analyzing said data to quantify the amount of in-stent restenosis that has occurred.

8-9. (Canceled)

10. (Original) The apparatus of claim 1, wherein said means comprises a dimension that is tuned to maximize the detection of in-stent restenosis.

11. (Original) The apparatus of claim 1, wherein said means comprises a dimension that is tuned for at least one microwave frequency.

12. (Original) The apparatus of claim 3, wherein said gap comprises a dimension that is tuned for at least one desired frequency.

13. (Original) The apparatus of claim 1, wherein said stent comprises a compact state with a first cross-sectional area and an expanded state with a second cross-sectional area that is greater than said first cross-sectional area.

14. (Original) The apparatus of claim 1, wherein said stent is selected from the group consisting of a cardiovascular stent, a neurovascular stent and a urological stent.

15. (Original) The apparatus of claim 6, further comprising an alarm, wherein said algorithm triggers said alarm if in-stent restenosis is present.

16. (Original) The apparatus of claim 7, further comprising an alarm, wherein said algorithm triggers said alarm if in-stent restenosis exceeds a pre-set level.

17. (Original) The apparatus of claim 7, further comprising an alarm, said apparatus further comprising a wireless transmitter operatively connected to said computer hardware, wherein said algorithm notifies a selected contact if in-stent restenosis exceeds a pre-set level.

18. (Currently amended) An apparatus, comprising:

a stent having a resonant frequency; ~~and~~

a microwave transmitter or microwave receiver operatively connected to said stent, wherein said microwave transmitter is configured for transmitting microwave radiation to said stent to produce scattered microwave radiation, and wherein said microwave receiver is configured for receiving data comprising microwave radiation scattered from said stent; and

a diagnostic that is operationally responsive to said resonant frequency.

19. (Original) The apparatus of claim 18, further comprising computer hardware with software comprising an algorithm programmed to perform a task selected from the group consisting of (i) analyzing said data to determine whether in-stent restenosis has occurred and (ii) analyzing said data to quantify the amount of in-stent restenosis that has occurred.

20. (Original) The apparatus of claim 18, further comprising means for enhancing microwave radiation that is scattered or reflected from said stent, wherein said means produces a larger scattered or reflected microwave radiation field over that which would occur from said stent absent said means.

21. (Original) The apparatus of claim 20, wherein said means comprises a cylindrical symmetry variation in said stent.

22. (Original) The apparatus of claim 18, wherein said stent comprises a cylindrical axis, wherein said means comprises a gap along said cylindrical axis.

23-24. (Canceled)

25. (Original) The apparatus of claim 20, wherein said means comprises a dimension that is tuned to maximize the detection of in-stent restenosis.

26. (Original) The apparatus of claim 20, wherein said means comprises a dimension that is tuned for at least one microwave frequency.

27. (Original) The apparatus of claim 22, wherein said gap comprises a dimension that is tuned for at least one desired frequency.

28. (Original) The apparatus of claim 18, wherein said stent comprises a compact state with a first cross-sectional area and an expanded state with a second cross-sectional area that is greater than said first cross-sectional area.

29. (Original) The apparatus of claim 18, wherein said stent is selected from the group consisting of a cardiovascular stent, a neurovascular stent and a urological stent.

30. (Original) The apparatus of claim 19, further comprising an alarm, wherein said algorithm triggers said alarm if in-stent restenosis is present.

31. (Original) The apparatus of claim 19, further comprising an alarm, wherein said algorithm triggers said alarm if in-stent restenosis exceeds a pre-set level.

32. (Original) The apparatus of claim 19, further comprising an alarm, said apparatus further comprising a wireless transmitter operatively connected to said computer hardware, wherein said algorithm notifies a selected contact if in-stent restenosis exceeds a pre-set level.

33-41. (Canceled)

42. (Currently amended) A method for preparing a patient for detection of in-stent restenosis, comprising implanting a stent having a resonant frequency within a patient, wherein said stent comprises means for enhancing microwave radiation that is scattered or reflected from said stent, wherein said

means produces a larger scattered or reflected microwave radiation field over that which would occur from said stent absent said means; wherein said method further comprises providing a diagnostic that is operationally responsive to said resonant frequency.

43. (Canceled)

44. (Original) The apparatus of claim 5, wherein said microwave transmitter and said microwave receiver operate over a frequency range of 0.1 to 50 GHz.

45. (Original) The apparatus of claim 5, wherein said microwave transmitter and said microwave receiver are polarization sensitive.

46. (New claim) The apparatus of claim 1, wherein said resonant frequency will shift as said stent collects plaque, said apparatus further comprising means for calculating said shift.